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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,746	08/07/2001	Grant Moulton	CISCP705	2962
26541	7590	06/30/2004	EXAMINER	
RITTER, LANG & KAPLAN 12930 SARATOGA AE. SUITE D1 SARATOGA, CA 95070			LEUNG, CHRISTINA Y	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/924,746	MOULTON ET AL.	
	Examiner	Art Unit	
	Christina Y. Leung	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 2 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>07 May 2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 2 and 16 are objected to because of the following informalities:

Line 2 of claim 2 recites "a optical attenuator" (sic); Examiner respectfully suggests that Applicants amend the phrase to "*an* optical attenuator" for grammatical reasons.

Line 2 of claim 16 recites "a tunable filter through a spectrum of said WDM signal" (sic); Examiner respectfully notes that Applicants should amend the phrase to "a tunable filter *that is tuned* through a spectrum..." for grammatical reasons (see the similar phrase in line 2 of claim

4).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 6, 7, 12, 13, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Onaka et al. (US 5,894,362 A).

Regarding claim 1, Onaka et al. disclose in a WDM communication system (Figure 5), a transmitter comprising:

a plurality of lasers 24-1...n assigned to transmit optical signals on a corresponding plurality of WDM channels (column 6, lines 42-44);

a multiplexer 30 that combines the plurality of optical signals onto a single fiber to form a composite WDM signal (column 6, lines 50-52);

an optical channel monitor (optical spectrum monitor 34) that monitors the composite WDM signal to determine wavelengths of the plurality of optical signals (column 6, lines 64-67; column 7, lines 1-3); and

a control block 36 that controls transmission wavelengths of the plurality of lasers to match wavelengths of the optical signals to desired WDM channel positions (column 7, lines 4-26).

Regarding claim 6, Onaka et al. disclose that the optical channel monitor comprises an optical spectrum analyzer (element 34). Although the terminology of Onaka et al. differs slightly from that of Applicants, the "optical spectrum monitor" disclosed by Onaka et al. is clearly a spectrum analyzer that analyzes a spectrum of an optical signal (see column 2, lines 56-60 and column 5, lines 45-47, for example).

Regarding claim 7, as similarly discussed above with regard to claim 1, Onaka et al. disclose in a WDM communication system (Figure 5), a method for transmitting comprising:

generating a plurality of optical signals on a plurality of WDM channels using a corresponding plurality of lasers 24-1...n (column 6, lines 42-44);

multiplexing the plurality of optical signals onto a single fiber to form a composite WDM signal (using multiplexer 30; column 6, lines 50-52);

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monitoring the composite WDM signal to determine wavelengths of the plurality of lasers (using optical spectrum monitor 34; column 6, lines 64-67; column 7, lines 1-3); and

controlling transmission wavelengths of the plurality of lasers to match wavelengths of the optical signals to desired WDM channel positions using control circuit 36; column 7, lines 4-26).

Regarding claim 12, again, Onaka et al. disclose that the monitoring comprises employing an optical spectrum analyzer (i.e., optical spectrum monitor 34).

Regarding claim 13, as similarly discussed above with regard to claims 1 and 7, Onaka et al. disclose in a WDM communication system (Figure 5), apparatus for transmitting comprising:

means for generating a plurality of optical signals on a corresponding plurality of WDM channels (lasers 24-1...n; column 6, lines 42-44);

means for multiplexing the plurality of optical signals onto a single fiber to form a composite WDM signal (multiplexer 30; column 6, lines 50-52);

means for monitoring the composite WDM signal to determine wavelengths of the plurality of optical signals (optical spectrum monitor 34; column 6, lines 64-67; column 7, lines 1-3); and

means for controlling transmission wavelengths of the plurality of optical signals to match wavelengths of the optical signals to desired WDM channel positions (control circuit 36; column 7, lines 4-26).

Regarding claim 18, again, Onaka et al. disclose that the monitoring means comprises an optical spectrum analyzer (i.e., optical spectrum monitor 34).

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4. Claims 1, 3-5, 7, 9-11, 13, and 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Jung et al. (US 2002/0048063 A1)

Regarding claim 1, Jung et al. disclose in a WDM communication system (Figure 1), a transmitter comprising:

a plurality of lasers 22a-n assigned to transmit optical signals on a corresponding plurality of WDM channels (page 3, paragraph 0053);

a multiplexer 26 that combines the plurality of optical signals onto a single fiber to form a composite WDM signal (page 1, paragraph 0002);

an optical channel monitor (including optical receivers 14a-b and filter 24 within locking apparatus 10) that monitors the composite WDM signal to determine wavelengths of the plurality of optical signals (page 4, paragraphs 0065-0071); and

a control block (including microprocessor 20 and D/A converter 18 within locking apparatus 10) that controls transmission wavelengths of the plurality of lasers to match wavelengths of the optical signals to desired WDM channel positions (page 4, paragraphs 0078-0081).

Regarding claim 3, Jung et al. disclose a tap coupler 28a that splits off a portion of the composite WDM signal for monitoring by the optical channel monitor (page 4, paragraph 0065).

Regarding claim 4, Jung et al. disclose that the optical channel monitor comprises:

a tunable filter (Fabry-Perot etalon filter 24) that is tuned through a spectrum of the WDM signal ;

a photodetector (optical receiver 14b), coupled to an output of the tunable filter, that detects peaks of the WDM signal (page 4, paragraphs 0065-0071).

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Regarding claim 5, although Figure 1 shows a Fabry-Perot etalon filter in particular, Jung et al. also disclose that the optical channel monitor may alternatively comprise an arrayed waveguide grating that outputs a plurality of monitor signals each indicative of composite WDM signal strength at a particular spectral position (page 3, paragraph 0052).

Regarding claim 7, as similarly discussed above with regard to claim 1, Jung et al. disclose in a WDM communication system (Figure 1), a method for transmitting comprising:

generating a plurality of optical signals on a plurality of WDM channels using a corresponding plurality of lasers 22a-n (page 3, paragraph 0053);

multiplexing the plurality of optical signals onto a single fiber to form a composite WDM signal (using multiplexer 26);

monitoring the composite WDM signal to determine wavelengths of the plurality of lasers (using optical receivers 14a-b and filter 24; page 4, paragraphs 0065-0771); and

controlling transmission wavelengths of the plurality of lasers to match wavelengths of the optical signals to desired WDM channel positions (using microprocessor 20 and D/A converter 18; page 4, paragraphs 0078-0081).

Regarding claim 9, Jung et al. disclose splitting off a portion of the composite WDM signal for the monitoring (using coupler 28a; page 4, paragraph 0065).

Regarding claim 10, Jung et al. disclose that the monitoring comprises:

tuning a tunable filter 24 through a spectrum of the WDM signal (page 3, paragraph 0042);

detecting peaks of the WDM signal based on output of the tunable filter (using optical receiver 14b; page 3, paragraph 0043); and

determining wavelengths of the lasers at positions of the peaks (using microprocessor 20; page 4, paragraphs 0077-0081).

Regarding claim 11, although Figure 1 shows employing a Fabry-Perot etalon filter in particular, Jung et al. disclose that the monitoring may alternatively comprise employing an arrayed waveguide grating to output a plurality of monitor signals each indicative of composite WDM signal strength at a particular spectral position (page 3, paragraph 0052).

Regarding claim 13, as similarly discussed above with regard to claims 1 and 7, Jung et al. disclose in a WDM communication system (Figure 1), apparatus for transmitting comprising:

means for generating a plurality of optical signals on a corresponding plurality of WDM channels (lasers 22a-n);

means for multiplexing the plurality of optical signals onto a single fiber to form a composite WDM signal (multiplexer 26);

means for monitoring the composite WDM signal to determine wavelengths of the plurality of optical signals (optical receivers 14a-b and filter 24; page 4, paragraphs 0065-0771);
and

means for controlling transmission wavelengths of the plurality of optical signals to match wavelengths of the optical signals to desired WDM channel positions (microprocessor 20 and D/A converter 18; page 4, paragraphs 0078-0081).

Regarding claim 15, Jung et al. disclose means for splitting off a portion of the composite WDM signal for input to the monitoring means (coupler 28a; page 4, paragraph 0065).

Regarding claim 16, Jung et al. disclose that the monitoring means comprises:

a tunable filter 24 tuned through a spectrum of the WDM signal;

means for detecting peaks of the WDM signal based on output of the tunable filter (optical receiver 14b; page 3, paragraphs 0043); and

means for determining wavelengths of the lasers at positions of the peaks (microprocessor 20; page 4, paragraphs 0077-0081).

Regarding claim 17, although Figure 1 shows employing a Fabry-Perot etalon filter in particular, Jung et al. disclose that the monitoring means may alternatively comprise an arrayed waveguide grating that outputs a plurality of monitor signals each indicative of composite WDM signal strength at a particular spectral position (page 3, paragraph 0052).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onaka et al. in view of Takatsu et al. (US 6,441,955 B1) and Liden et al. (EP 0981212 A1).

Regarding claims 2, 8, and 14, Onaka et al. disclose a system and method as discussed above with regard to claims 1, 7, and 13 respectively. Onaka et al. does not specifically disclose an optical attenuator or other means for blocking further transmission of the composite WDM signal when monitoring determines that a wavelength of at least one of the plurality of lasers is outside a desired range.

However, Takatsu et al. teach a system related to the system disclosed by Onaka et al., including means for transmitting a wavelength division multiplexed signal (through multiplexer

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3-1 in Figure 8, for example). Takatsu et al. further teaches that optical attenuators 2-1 may be used to block transmission of a signal when a channel monitor (i.e., spectrum analyzer 5-2, shown in Figure 8) determines that its wavelength is outside a desired range (column 13, lines 53-60; column 14, lines 1-7). It is well understood in the art that the plurality of signals in a wavelength division multiplexing system are distinguished from each other by wavelength (by definition of a WDM system), and therefore, signals whose respective wavelengths are the same or too close/similar may interfere with each other and may not be properly received.

Takatsu et al. particularly suggest blocking only the signal having the undesired wavelength and do not specifically suggest blocking the composite WDM signal. However, Liden et al. also teach a system related to the system disclosed by Onaka et al., including means for transmitting a wavelength division multiplexed signal (Figures 1 and 2). Liden et al. further teach that an attenuator (Figure 2, element 15) may be used to block further transmission of a composite WDM signal when a monitor has detected an abnormality on the path (column 5, lines 17-28; column 6, line 58; column 7, lines 1-3). Examiner notes that although Liden et al. refer to element 15 as a "pre-amplifier," they clearly teach that this element may be used as an attenuating element (column 5, lines 23-28).

Regarding claims 2, 8, and 14, it would have been obvious to a person of ordinary skill in the art to include an attenuator or other means for blocking the composite WDM signal as taught by Takatsu et al. and Liden et al. in the system and method disclosed by Onaka et al. in order to terminate the transmission when a wavelength error is detected until the situation is properly resolved. Examiner notes that the system disclosed by Onaka et al. is already directed to maintaining correct wavelengths of the signals (column 3, lines 19-21). One in the art would

have been particularly motivated to include an attenuator as taught by Takatsu et al. and Liden et al. in order to ensure that the equipment at a receiving end of the communications system receives either multiplexed signals that are correctly transmitted, or in the event of error, none at all, and to thus prevent improperly transmitted signals from being unknowingly received.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 703-605-1186. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christina Y Leung
Christina Y Leung
Patent Examiner
Art Unit 2633